CLAIMS

1. – 40. (CANCELED)

41. (PREVIOUSLY PRESENTED) A method of decomposition of waveforms in a cardiac signal comprising the steps of:

a) connecting electrodes to a presenting patient;

b) deriving analogue input signals from the electrodes;

c) sampling said analogue input signals to derive the cardiac signal (EKG);

d) digitising said EKG signal;

e) employing wavelet transform analysis to process said digitised EKG signal;

f) deriving the wavelet energy surface of the EKG;

g) plotting said energy surface against a location parameter *b* and a scale parameter; and

h) visually displaying said signal in real time.

42. (PREVIOUSLY PRESENTED) The method of Claim 41, wherein said wavelet transform analysis uses a continuous wavelet transform discretitsed for use in the analysis of digitised signals.

43. (PREVIOUSLY PRESENTED) The method of Claim 41, wherein said scale parameter is characterised by a dilation value *a*.

44. (PREVIOUSLY PRESENTED) The method of Claim 41, wherein said scale parameter is characterised by a characteristic wavelet frequency, for example the wavelet band pass frequency value f_{bpc}.

45. (PREVIOUSLY PRESENTED) The method of Claim 41, wherein the step of visually displaying the signal is characterised by a contour plot.

46. (PREVIOUSLY PRESENTED) The method of Claim 41, wherein the step of visually displaying the signal is characterised by a surface plot.

47. (PREVIOUSLY PRESENTED) The method of Claim 41, wherein the step of visually displaying the signal is characterised by one type of energy scalogram from a group comprising 2D and 3D energy scalograms.

48. (PREVIOUSLY PRESENTED) A method of decomposition of waveforms in a cardiac signal comprising the steps of:

a) connecting electrodes to a patient whose heart is in Ventricular Fibrillation (VF);

b) deriving analogue input signals from the electrodes;

c) sampling said analogue input signals to derive the cardiac signal (EKG);

d) digitising said EKG signal;

e) employing wavelet transform analysis to process said digitised EKG signal;

f) extracting key features from the wavelet transform representation; and

g) guiding a resuscitation protocol, said guidance comprising the steps of;

h) using an analytical method to determine the likely outcome of a defibrillation shock; and

i) determining whether to provide at least one interim therapeutic intervention from a group comprising defibrillatory shock, CPR and pharmaceutical, before shocking.

49. (PREVIOUSLY PRESENTED) The method of Claim 48 wherein the analytical method is characterised by learning vector quantisation (LVQ) methods, for example Kohonen Networks.

50. (PREVIOUSLY PRESENTED) The method of Claim 48 where the analytical method is characterised by statistical, stochastic methods, for example Baysian Methods.

51. (PREVIOUSLY PRESENTED) The method of Claim 48 where the analytical method is characterised by multi-layered neural network methods, for example Radial Basis Neural Networks.

52. (PREVIOUSLY PRESENTED) A method of decomposition of waveforms in a cardiac signal comprising the steps of:

a) connecting electrodes to a presenting patient with a heart in Ventricular Fibrilation (VF);

b) deriving analogue input signals from the electrodes;

c) sampling said analogue input signals to derive the cardiac signal (EKG);

d) digitising said EKG signal;

e) employing wavelet transform analysis to process said digitised EKG signal;

f) extracting key features from the wavelet transform representation; and

using an analytical method for determining the optimal time for shocking.

53. (PREVIOUSLY PRESENTED) The method of Claim 52 where the analytical method is characterised by learning vector quantisation (LVQ) methods, for example Kohonen Networks.

54. (PREVIOUSLY PRESENTED) The method of Claim 52 where the analytical method is characterised by statistical, stochastic methods, for example Baysian Methods.

55. (PREVIOUSLY PRESENTED) The method of Claim 52 where the analytical method is characterised by multi-layered neural network methods, for example Radial Basis Neural Networks.

56. (PREVIOUSLY PRESENTED) A method of decomposition of waveforms in a cardiac signal comprising the steps of:

a) connecting electrodes to a presenting patient whose heart is in Ventricular

Fibrillation (VF) after the commencement of Cardio-Pulmonary Resuscitation (CPR);

b) deriving analogue input signals from the electrodes;

c) sampling the analogue input signals to derive the cardiac signal (EKG);

digitising said EKG signal; and

d) employing wavelet transform analysis to process said digitised EKG signal.

57. (PREVIOUSLY PRESENTED) The method of claim 56 further including the steps of:

a) filtering said cardiac signal such that the CPR component is disassociated/separated from the heart signal;

b) producing an energy wavelet scalogram; and

c) temporally filtering the scalogram using ridge following techniques.

58. (PREVIOUSLY PRESENTED) The method of claim 57 where said ridge following techniques are characterised by modulus maxima techniques.

59. (PREVIOUSLY PRESENTED) The method of Claim 57 and further including steps for guiding resuscitation protocol, comprising:

a) extracting key features from the wavelet transform representation

b) using an analytical method for determining the likely outcome of a defibrillation shock; and

c) determining whether to provide at least one interim therapeutic intervention from a group comprising immediate defibrillatory shock and CPR, before shocking.

60. (PREVIOUSLY PRESENTED) The method of Claim 59 where said analytical method is characterised by learning vector quantisation (LVQ) methods, for example Kohonen Networks.

61. (PREVIOUSLY PRESENTED) The method of Claim 59 where said analytical method is characterised by statistical, stochastic methods, for example Baysian Methods.

62. (PREVIOUSLY PRESENTED) The method of Claim 59 where said analytical method is characterised by multi-layered neural network methods, for example Radial Basis Neural Networks.

63. (PREVIOUSLY PRESENTED) A method of decomposition of waveforms in a cardiac signal comprising the steps of:

a) connecting electrodes to a presenting patient whose heart is in Atrial Fibrilation (AF);

b) deriving analogue signals from said electrodes;

c) sampling the analogue input signals to derive the cardiac signal (EKG);

d) digitising said EKG signal; and

e) employing wavelet transform analysis to process said digitised EKG signal.

64. (PREVIOUSLY PRESENTED) The method of claim 63 further including the step of filtering said cardiac signal such that the QRS complex and T components are disassociated/separated from the heart signal, comprising:

a) producing an energy wavelet scalogram; and

b) temporally filtering the scalogram using ridge following techniques.

65. (PREVIOUSLY PRESENTED) The method of claim 64 where said ridge following techniques are characterised by modulus maxima techniques.

66. (PREVIOUSLY PRESENTED) The method of Claim 64 further including steps for guiding the course of therapeutic intervention taken, comprising:

a) extracting key features from the wavelet transform representation;

b) using an analytical method for determining the likely outcome of a cardioversion shock; and

c) determining whether to at least one therapeutic intervention from a group comprising cardioversion shock, and drug therapy.

67. (PREVIOUSLY PRESENTED) The method of Claim 66 where said analytical method is characterised by learning vector quantisation (LVQ) methods, for example Kohonen Networks.

68. (PREVIOUSLY PRESENTED) The method of Claim 66 where said analytical method is characterised by statistical, stochastic methods, for example Baysian Methods..

69. (PREVIOUSLY PRESENTED) The method of Claim 66 where said analytical method is characterised by multi-layered neural network methods, for example Radial Basis Neural Networks.